



Welcome to the

KS1 Maths Parents Workshop

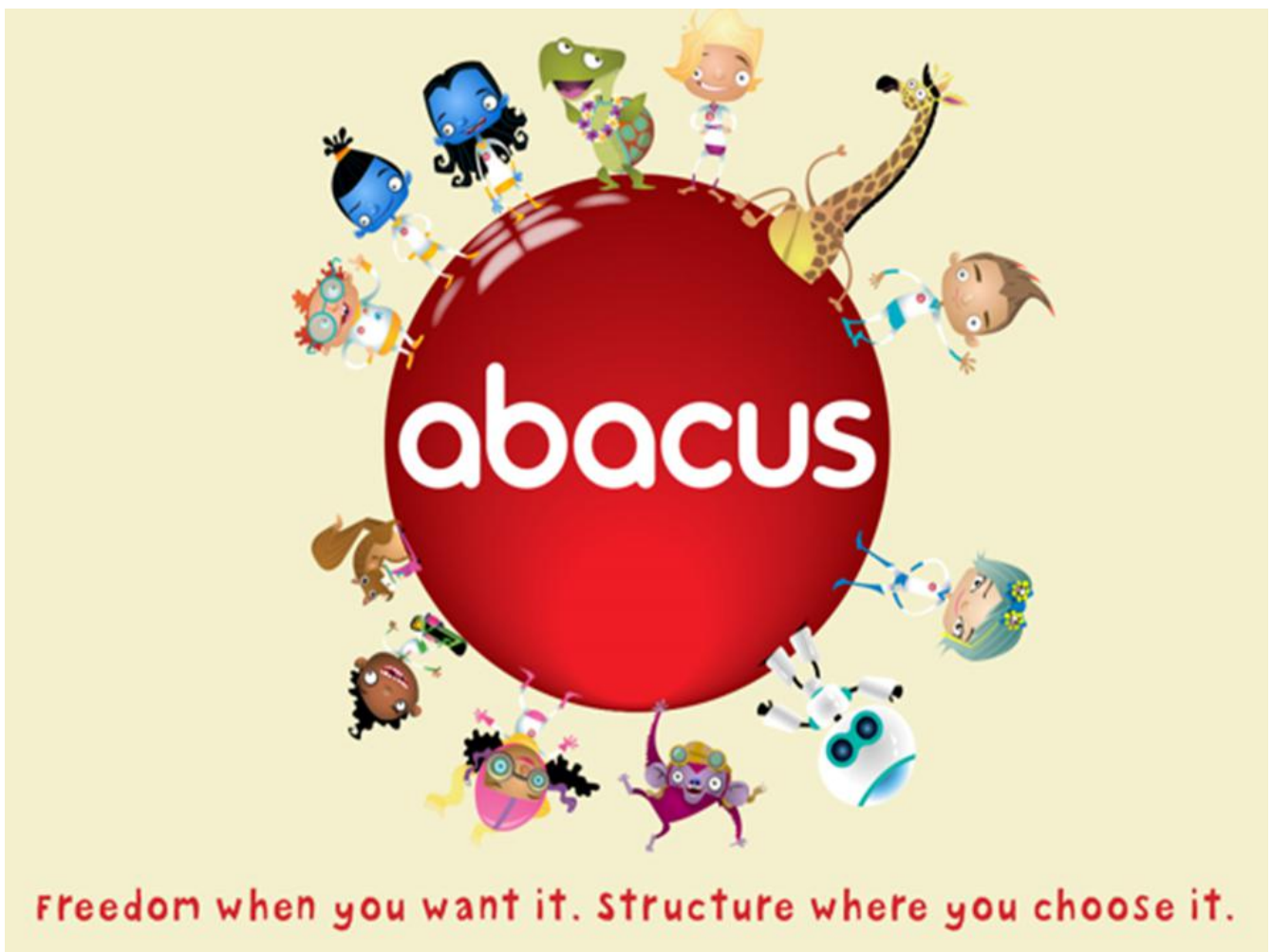
Elena Yiapanis, Maths Subject Leader
Suzy Fotheringham, Assistant Headteacher Y1 and Y2



Aims:



- ~ To better understand the steps children need to make to build confidence in maths, and how you can help at home.
- ~ To gain an insight into some of the calculation methods and strategies used in KS1.
- ~ To demonstrate some of these methods.



Abacus Four Pillars



To develop **conceptual understanding**, numerical fluency, problem-solving skills and mathematical confidence, young mathematicians need...

1
10
100
1

Place value

2×3
 $9 + 1$
2

Number facts

0 1 2 3
3

Models and images

$2 + 2$
 $8 \div 2$
4

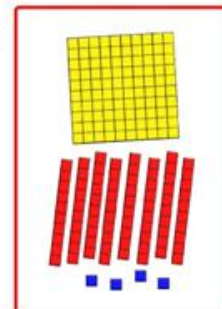
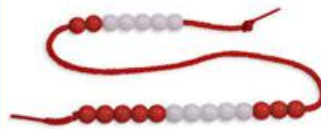
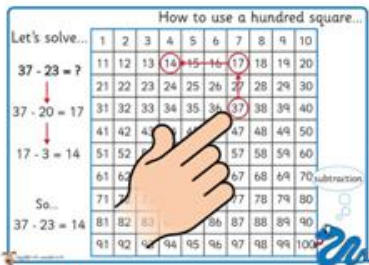
Doubling and halving

What is mastery?

- Deep and sustainable learning
- The ability to build on something that has already been sufficiently mastered.
- The ability to reason about a concept and make connections.
- Conceptual and procedural fluency.

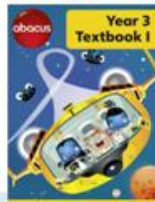
What a typical maths lesson might look like- range of activities

- ▶ Practical- concrete resources



- ▶ Online- games, interactive (we will have a look at these shortly).

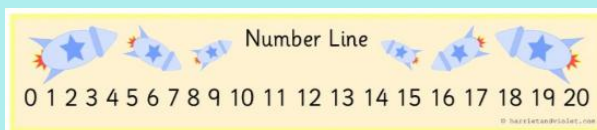
- ▶ Written- workbooks





How do young children
learn maths?

Number track

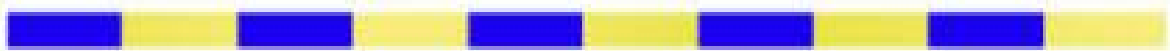


1	2	3			6		8	9	
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12	13		15		17	
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Counting in 10s



Counting in 2s, 5s and 10s using the 100 square

Add & subtract 10 using the 100 square

Ten more than 14 is ...

Ten less than ..

$$14 + 10$$

$$14 + 20$$

$$14 + 30$$

$$58 - 10$$

$$58 - 20$$

$$14 + 9$$

Number bonds to 10 and to 20 and 100

$1 + 9 = 10$

$2 + 8 = 10$

$3 + 7 = 10$

$4 + 6 = 10$

$5 + 5 = 10$

$6 + 4 = 10$

$7 + 3 = 10$

$8 + 2 = 10$

$9 + 1 = 10$

$10 + 0 = 10$

$1 + 19 = 20$

$2 + 18 = 20$

$3 + 17 = 20$

$4 + 16 = 20$

$5 + 15 = 20$

$6 + 14 = 20$

....

$10 + 90 = 100$

$20 + 80 = 100$

$30 + 70 = 100$

$40 + 60 = 100$

$50 + 50 = 100$

$60 + 40 = 100$

....

Relate their knowledge

$$22 + 8 = 30$$

because they know that $2+8 = 10$

$$36 + 4 = 40$$

because they know that $4+6 = 10$

etc

Important to know all the number bond facts
up to 10

For example, for 8:

$$8 = 4 + 4$$

$$8 = 5 + 3$$

$$8 = 6 + 2$$

$$8 = 7 + 1$$

$$8 = 8 + 0$$

And the other way around $2 + 6$

We present them with missing number box problems

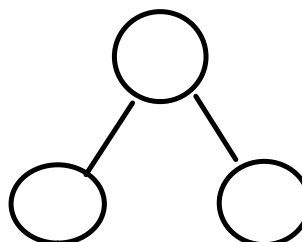
part part whole

$$5 + _ = 8$$



so that I know that

$$8 - 5 = _$$



Inverse relationship between + and -

For example,

$$3 + 5 = 8 \quad \text{so} \quad 8 - 3 = 5 \quad \text{and} \quad 8 - 5 = 3$$

$$3 + 7 = 10$$

$$10 - 3 = 7$$

$$10 - 7 = 3$$

**Adding and subtracting
two 2-digit numbers**

$$36 + 23$$

$$45 - 22$$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

$$36 + 23$$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
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61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
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41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

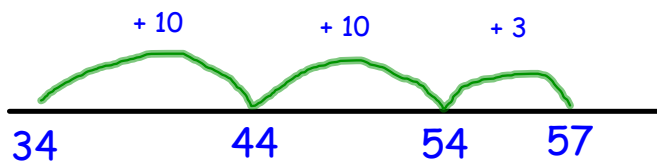
$$45 - 22$$



We're going to show you a written method:
Adding using a blank numberline

$$34 + 23$$

20 3



Addition using knowledge of place-value

$$\begin{array}{r} 34 + 23 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 30 \quad 4 \quad 20 \quad 3 \end{array}$$

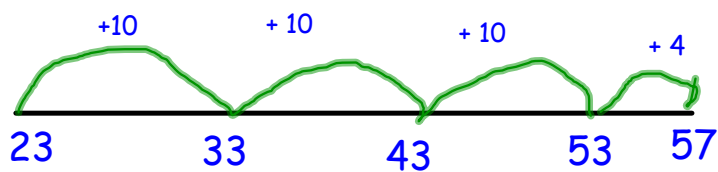
$$30 + 20 = 50$$

$$4 + 3 = 7$$

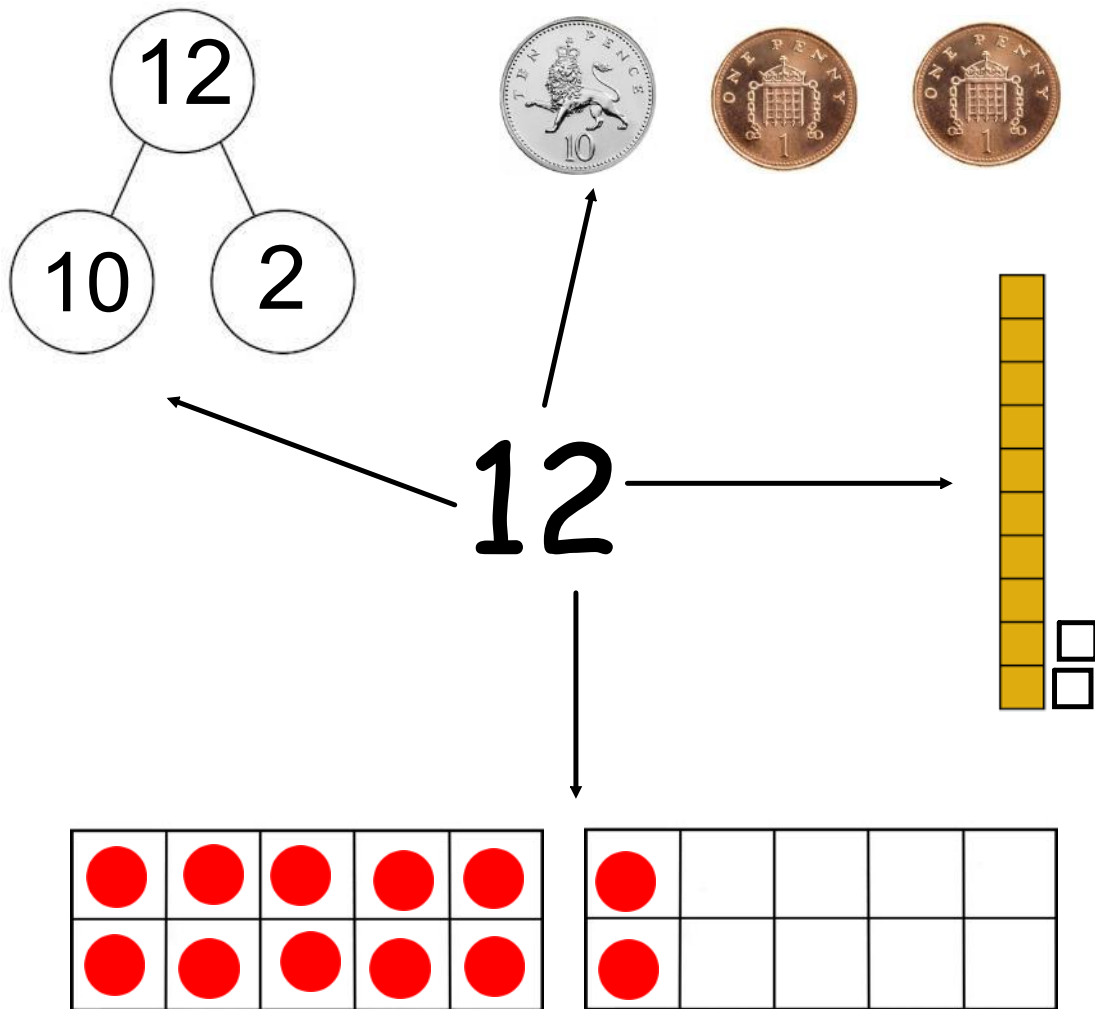
$$50 + 7 = 57$$

Using counting up to find the difference between two numbers.

$$57 - 23 = 34$$



We show them different representations of number



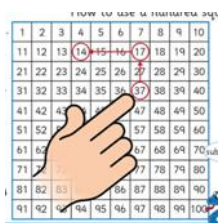
Multiple representations of the same number.

Number		Number word	
47		Forty seven	
Draw it		Expanded form	
Tens	Ones	$40 + 7 = 47$ $7 + 40 = 47$	
		

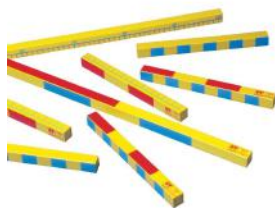
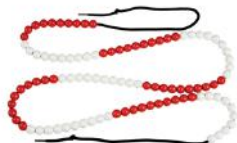
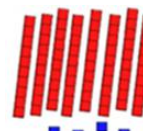
Why Talk for Maths?

- Promotes **deeper maths learning**.
- Children need to talk and to experience a **rich diet of spoken language** in order to open up their thinking and learning.
- Aims to **improve children's confidence** in maths as well as promote a positive risk-taking ethos.

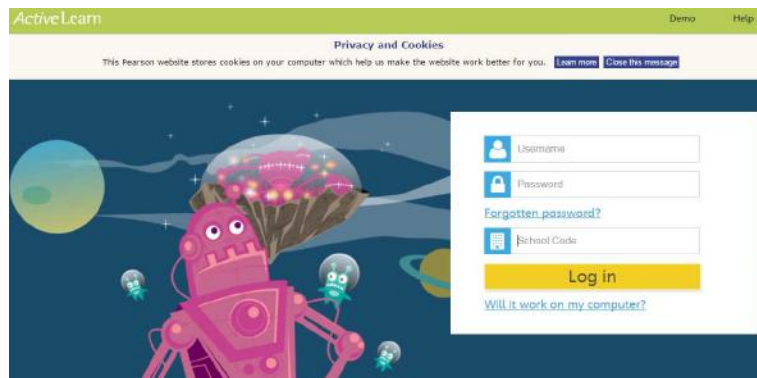
Resources used in the classroom



10s and 1s



Homework online



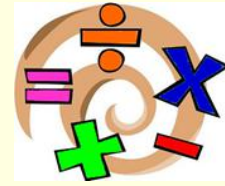
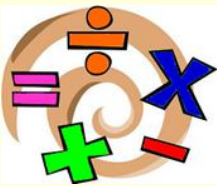
IXL Home Learning Activities

The screenshot shows the IXL website interface. At the top, there is a search bar with the text "Search topics and skills" and a magnifying glass icon. To the right, it says "Welcome, Suzy Fotheringham!". Below this is a green navigation bar with "Learning" and "Analytics" tabs. Underneath, there are icons for "Recommendations", "Diagnostic", "Maths" (which is highlighted), "English", "National curriculum", and "Awards". A "View by:" dropdown menu is set to "Years" and "Topics".

Year 1 maths

Here is a list of all of the maths skills students learn in year 1! These skills are organised into categories, and you can move your mouse over any skill name to preview the skill. To start practising, just click on any link. IXL will track your score, and the questions will automatically increase in difficulty as you improve!

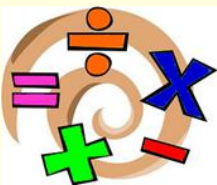
Category	Skills
Numbers and counting up to 3	<ul style="list-style-type: none"> A.1 Learn to count to 3 A.2 Count to 3 A.3 Count using stickers - up to 3 A.4 Count on ten frames - up to 3 A.5 Show numbers on ten frames - up to 3 A.6 Represent numbers - up to 3
Sorting, ordering and classifying	<ul style="list-style-type: none"> H.1 Same H.2 Different H.3 Same and different H.4 Classify shapes by colour H.5 Classify and sort by colour H.6 Classify and sort by shape H.7 Classify and sort H.8 Sort shapes into a Venn diagram H.9 Count shapes in a Venn diagram H.10 Put numbers up to 10 in order
Subtraction up to 10 and 20	<ul style="list-style-type: none"> P.1 Subtract with pictures - numbers up to 10 P.2 Subtraction sentences - numbers up to 10 P.3 Make a number using subtraction - numbers up to 10 P.4 Subtract - numbers up to 10 P.5 Complete the subtraction sentence - numbers up to 10 P.6 Write subtraction sentences P.7 Subtraction word problems - numbers up to 10
Numbers and counting up to 5	<ul style="list-style-type: none"> B.1 Learn to count to 5



Thank you for giving up your time to come along today. We hope you have found it useful.

Please use the information on our KS1 Maths Strategies Overview to clarify any methods and strategies we use in our teaching on the following pages. Also, on our website:



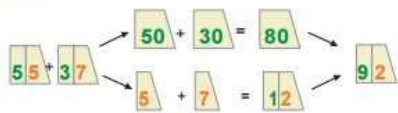


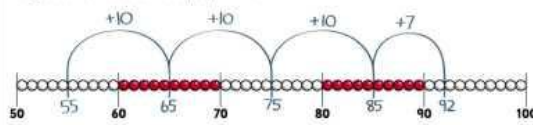
<https://muswellhillprimary.co.uk/wp-content/uploads/2014/01/KS1-Overview.pdf> (also included on following pages here)

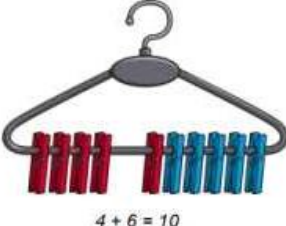
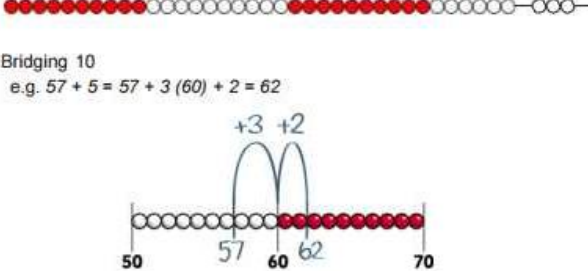





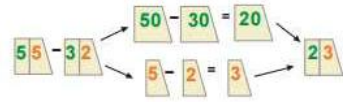
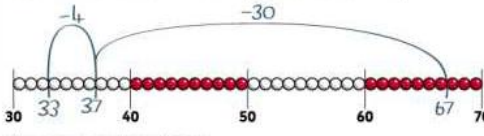

Any questions?

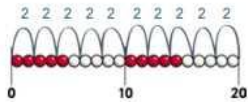
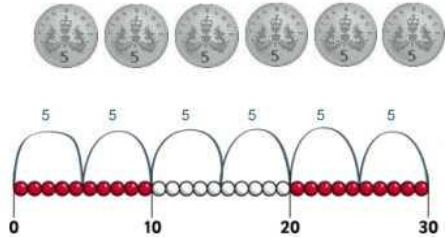


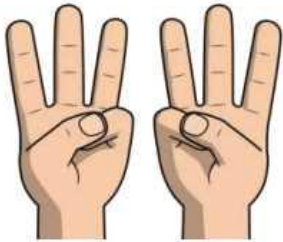
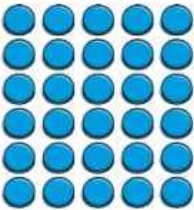
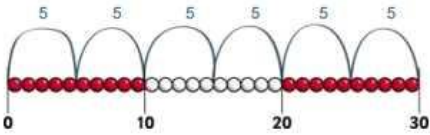
Muswell Hill Calculation Policy

	Year 1	Year 2									
Mental Addition	<p>Using place value Count in 1s e.g. $45 + 1$ Count in 10s e.g. $45 + 10$ without counting on in 1s</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>34</td> <td>35</td> <td>36</td> </tr> <tr> <td>44</td> <td style="text-align: center;"></td> <td>46</td> </tr> <tr> <td>54</td> <td>55</td> <td>56</td> </tr> </table>	34	35	36	44		46	54	55	56	<p>Using place value Know 1 more or 10 more than any number e.g. 1 more than 67 e.g. 10 more than 85 Partitioning e.g. $55 + 37$ as $50 + 30$ and $5 + 7$, then finally combine the two totals: $80 + 12$</p> <div style="text-align: center;">  </div>
	34	35	36								
	44		46								
54	55	56									
<p>Add 10 to any given 2-digit number</p> <p>Counting on Count on in 1s e.g. $8 + 3$ as 8, 9, 10, 11</p> <div style="text-align: center;">  </div>	<p>Counting on Add 10 and multiples of 10 to a given 1- or 2-digit number e.g. $76 + 20$ as 76, 86, 96 or in one hop: $76 + 20 = 96$ Add two 2-digit numbers by counting on in 10s, then in 1s e.g. $55 + 37$ as $55 + 30$ (85) + 7 = 92</p> <div style="text-align: center;">  </div>										
<p>Add, putting the larger number first Count on in 10s e.g. $45 + 20$ as 45, 55, 65</p>	<p>Add near multiples of 10 e.g. $46 + 19$ e.g. $63 + 21$</p>										

	Year 1	Year 2
Mental Addition	<p>Using number facts 'Story' of 4, 5, 6, 7, 8 and 9 e.g. $7 = 7 + 0$, $6 + 1$, $5 + 2$, $4 + 3$ Number bonds to 10 e.g. $5 + 5$, $6 + 4$, $7 + 3$, $8 + 2$, $9 + 1$, $10 + 0$</p>  <p style="text-align: center;">$4 + 6 = 10$</p> <p>Use patterns based on known facts when adding e.g. $4 + 3 = 7$ so we know $24 + 3$, $44 + 3$, $74 + 3$</p>	<p>Using number facts Know pairs of numbers which make the numbers up to and including 12 e.g. $8 = 4 + 4$, $3 + 5$, $2 + 6$, $1 + 7$, $0 + 8$ e.g. $10 = 5 + 5$, $4 + 6$, $3 + 7$, $2 + 8$, $1 + 9$, $0 + 10$ Use patterns based on known facts when adding e.g. $6 + 3 = 9$, so we know $36 + 3 = 39$, $66 + 3 = 69$, $56 + 3 = 59$</p>  <p>Bridging 10 e.g. $57 + 5 = 57 + 3 (60) + 2 = 62$</p> <p>Add three or more 1-digit numbers, spotting bonds to 10 or doubles e.g. $3 + 5 + 3 = 6 + 5 = 11$ e.g. $8 + 2 + 4 = 10 + 4 = 14$</p>

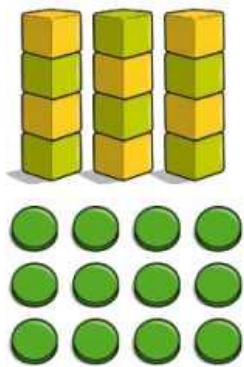
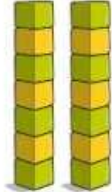

	Year 1	Year 2									
Mental Subtraction	<p>Using place value Count back in 1s e.g. <i>Know 53 - 1</i> Count back in 10s e.g. <i>Know 53 - 10 without counting back in 1s</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #800080; color: white;">32</td> <td style="background-color: #800080; color: white;">33</td> <td style="background-color: #800080; color: white;">34</td> </tr> <tr> <td style="background-color: #800080; color: white;">42</td> <td style="background-color: #800080; color: white;">43</td> <td style="background-color: #800080; color: white;">44</td> </tr> <tr> <td style="background-color: #800080; color: white;">52</td> <td style="background-color: #800080; color: white; text-align: center;">  </td> <td style="background-color: #800080; color: white;">54</td> </tr> </table> <p>Taking away Count back in 1s e.g. <i>11 - 3 as 11, 10, 9, 8</i> e.g. <i>14 - 3 as 14, 13, 12, 11</i></p> <div style="text-align: center;">  </div> <p>Count back in 10s e.g. <i>53 - 20 as 53, 43, 33</i></p>	32	33	34	42	43	44	52		54	<p>Using place value Know 1 less or 10 less than any number e.g. <i>1 less than 74</i> e.g. <i>10 less than 82</i> Partitioning e.g. <i>55 - 32 as 50 - 30 and 5 - 2 and combine the answers: 20 + 3</i></p> <div style="text-align: center;">  </div> <p>Taking away Subtract 10 and multiples of 10 e.g. <i>76 - 20 as 76, 66, 56 or in one hop: 76 - 20 = 56</i> Subtract two 2-digit numbers by counting back in 10s, then in 1s e.g. <i>67 - 34 as 67 subtract 30 (37) then count back 4 (33)</i></p> <div style="text-align: center;">  </div> <p>Subtract near multiples of 10 e.g. <i>74 - 21</i> e.g. <i>57 - 19</i></p>
	32	33	34								
	42	43	44								
	52		54								

	Year 1	Year 2																																																																																																			
Mental Multiplication	<p>Counting in steps ('clever' counting) Count in 2s</p> 	<p>Counting in steps ('clever' counting) Count in 2s, 5s and 10s</p> 																																																																																																			
	<p>Count in 10s</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> <tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr> <tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Mental Multiplication	Year 1	Year 2
	<p>Doubling and halving Find doubles to double 5 using fingers e.g. <i>double 3</i></p> 	<p>Grouping Use arrays to find answers to multiplication and relate to 'clever' counting e.g. 3×4 as <i>three lots of four things</i> e.g. 6×5 as <i>six steps in the 5s count as well as six lots of five</i></p>   <p>Understand that 5×3 can be worked out as three 5s or five 3s.</p>

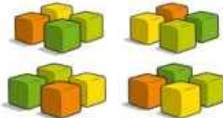


Overview of Strategies and Methods – Multiplication

Mental Multiplication	Year 1	Year 2
	<p>Grouping Begin to use visual and concrete arrays and sets of objects to find the answers to 'three lots of four' or 'two lots of five' e.g. <i>three lots of four</i></p> 	<p>Using number facts Know doubles to double 20 e.g. <i>double 7 is 14</i></p>  <p>Start learning $\times 2$, $\times 5$, $\times 10$ tables, relating these to 'clever' counting in 2s, 5s, and 10s e.g. $5 \times 10 = 50$, and five steps in the 10s count = 10, 20, 30, 40, 50</p> 

obacus Overview of Strategies and Methods – Division

	Year 1	Year 2																																																																																																				
Mental Division	<p>Counting in steps ('clever' counting) Count in 2s</p>	<p>Counting in steps ('clever' counting) Count in 2s, 5s and 10s</p>																																																																																																				
	<p>Count in 10s</p> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> <tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr> <tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr> <tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr> <tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	<p>Begin to count in 3s</p> <p>Doubling and halving Find half of numbers up to 40, including realising that half of an odd number gives a remainder of 1 or an answer containing a $\frac{1}{2}$</p> <p>e.g. $\frac{1}{2}$ of 11 = $5\frac{1}{2}$</p>
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<p>Doubling and halving Find half of even numbers up to 12, including realising that it is hard to halve an odd number</p>	<p>Begin to know half of multiples of 10 to 100 e.g. half of 70 is 35</p>																																																																																																					

		abacus Overview of Strategies and Methods – Division									
		Year 1	Year 2								
Mental Division	Grouping	Begin to use visual and concrete arrays and 'sets of' objects to find the answers to questions such as 'How many towers of three can I make with twelve cubes?'	Relate division to multiplication by using arrays or towers of cubes to find answers to division e.g. 'How many towers of five cubes can I make from twenty cubes?' as $_ \times 5 = 20$ and also as $20 \div 5 = _$								
	Sharing	Begin to find half of a quantity using sharing e.g. find half of 16 cubes by giving one each repeatedly to two children	Relate division to 'clever' counting and hence to multiplication e.g. 'How many fives do I count to get to twenty?'								
			<p>Sharing</p> <p>Begin to find half or a quarter of a quantity using sharing e.g. find a quarter of 16 cubes by sorting the cubes into four piles</p>  <p>Find $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ of small quantities</p> <table border="1" data-bbox="863 1131 1225 1198"> <tr> <td colspan="2">$\frac{1}{2}$</td> <td colspan="2">$\frac{1}{2}$</td> </tr> <tr> <td>$\frac{1}{4}$</td> <td>$\frac{1}{4}$</td> <td>$\frac{1}{4}$</td> <td>$\frac{1}{4}$</td> </tr> </table> <p>Using number facts</p> <p>Know half of even numbers to 24 Know $\times 2$, $\times 5$ and $\times 10$ division facts Begin to know $\times 3$ division facts</p>	$\frac{1}{2}$		$\frac{1}{2}$		$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{2}$		$\frac{1}{2}$									
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$								